progressive sign of the times, however, is the fact that mental hygiene has for the last few years gradually been getting legislative attention. It is to be hoped that eventually saner laws on this important subject will be widespread.

Sound, scientific, practical, workable, enforceable legislation is one of the several fundamental necessities for efficient public health administration. No law should be proposed unless it is also proposed to enforce it. Much new and better health legislation is still needed, and, what is far more important, better health laws are necessary. Sanitarians have no desire to contribute to the alarming multiplicity of the laws, but they are rightly interested in seeing more progressive health legislation and more effective sanitary measures enacted, to the end that the public health may be fostered and advanced and the vitality, and with it the prosperity and happiness, of the people of the states enhanced.

WHAT IS PASTEURIZATION?

THE LAST edition of Webster's New International Dictionary defines pasteurization as "a process devised by Pasteur for preventing or checking fermentation in fluids, such as wines, milk, etc., by exposure to a temperature of 55°–70° C. (131°–158° F.). While this treatment does not destroy spores, it avoids the injurious effects that might accompany complete sterilization." The Standard Dictionary gives a similar definition limiting the temperature range to 144°–149° F. Federal, state and municipal laws and regulations give other definitions which specify not only the temperature of the heat treatment but also the minimum, and in some cases the maximum, period of time that the treatment shall be applied to milk that is to be sold as pasteurized milk.

The process originally devised by Pasteur to check fermentation in wine and beer is now chiefly used, in the United States at least, to destroy pathogenic microorganisms in milk without affecting its taste or seriously injuring its original food value. For this purpose it would seem to be possbile to define pasteurization within rather narrow limits. The tubercle bacillus may be called the determining organism since the other pathogenic microörganisms apt to be found in milk are destroyed more easily by heat than is this bacillus. Different investigators have found the tubercle bacillus to be killed at different temperatures in the same period of time, and in different periods of time at the same temperature. Such conflict of laboratory testimony has made it difficult to set adequate standards for commercial pasteurization.

In 1910 and succeeding years the New York Milk Committee, a group working to improve the milk supply to reduce infant mortality in New York City, found the need for an authoritative standard for pasteurization. Its appointed body of experts, the National Commission on Milk Standards, after a thorough study and investigation unanimously recommended a temperature of 145° F. for 30 minutes. This standard was endorsed by many authorities, widely accepted by sanitarians, and made a part of many official regulations. There have been continued attacks upon this standard inspired by both science and commerce, a few attempts to raise it and many, especially vigorous, to lower it.

If the only effect of heating milk were to destroy the bacteria in it, pasteurization would probably not be a subject of controversy. However, heat treatment affects the apparent cream volume, increasing or decreasing this apparent volume above or below that of untreated milk according to the heat treatment given. The consumer with no other obvious criterion judges the quality of milk largely by the

depth of the visible stratum of butter fat. He will usually regard milk with little apparent cream as less desirable than milk which shows a greater layer of cream but which as a matter of fact may contain less butter fat. Until the public has learned to accept a more reasonable and surer standard of milk quality than the *visible* fat content the dealer naturally wants the cream content to appear as large as possible. While the sanitarian is also concerned with the apparent cream volume, his first consideration is that milk given commercial heat treatment be rendered non-infectious, that is, pasteurized in the public health sense.

The standards of the New York Milk Commission in the opinion of health authorities were adequate for public health protection. With the development of milk supervision and the improvement of pasteurizing machinery susceptible of more delicate and certain control it seemed right to examine the matter anew. An opportunity to do this was created by the Borden's Farm Products Company in 1921. This concern made available funds, personnel and facilities for a study under the direction of Dr. Charles E. North, who invited others to coöperate with him. The report of this study has now been published by the U. S. Public Health Service and is reviewed in this issue.*

At the Detroit meeting of the American Public Health Association last year the Association endorsed in a formal resolution the pasteurization of milk as "the most practicable and rapidly carried out measure for the safeguarding of the milk supply." The resolution did not prescribe any standard for pasteurization, leaving this phase of the matter for the consideration of the Committee on Milk Supply of the Sanitary Engineering Section. This committee deferred its recommendation of standards for safe pasteurization until the completion of the experiments carried on by Dr. North and his associates. Whether or not the Committee on Milk Supply or the American Public Health Association will endorse the recommendations of this group remains to be seen. The matter will doubtless be considered at the St. Louis Meeting this fall. Meantime, public health officials are advised to await the report of the Committee on Milk Supply before rewriting their milk regulations.

* See page 723.

ASKING QUESTIONS

THE TREMENDOUS progress in public health as well as in curative medicine has been due to interchange of opinion, expression of group judgment and intensive study, based upon questions arising in the minds of those interested in the solution of actual medical, surgical and health problems. In this age of specialization, any inquiry from those who concentrate on the study of just one phase of the broad field of public health, is indeed pertinent and proper.

Men, no matter how preëminent, do not hesitate to seek advice and assistance from those whose opinions are based upon concentration and the devotion of their time and efforts to certain aspects of the work. Clinicians have never hesitated, if they have desired to make progress, to invoke the assistance and ability of the laboratory man for the solution of their problems. Diagnosticians have frankly appealed for the assistance of others to aid them in arriving at correct conclusions.

The collaboration evident in many leading text books with the compiler, showing no hesitancy in giving credit and frank acknowledgment to the advantages derived from the selection of leaders in the particular subjects to guide him in the issuance of something which he hopes to be standard, is a most striking tribute to specialization.